Intel Corporation
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Page 1 of 19

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Date: November 14, 2005

TO: **USPTO**
Examiner J. Wozniak
Art Unit 2655
Fax Number 571-273-8300

FROM: **Alan Pedersen-Giles**
Fax Number 703-633-3303
Phone Number 703-633-1061

SUBJECT: Application Number 09/828,400
Inventor(s) Steven P. Poulsen, et al.
Date Filed April 06, 2001
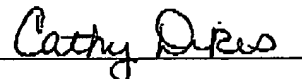Docket Number 42.P10106
Title Voice Activity Detection

INCLUDED IN THIS TRANSMISSION:

Fax Cover Sheet	1 page
Transmittal	1 page
Fee Transmittal	1 page
Appeal Brief	16 pages

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Cathy Dikes _Cathy Dikes_

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/828,400
Filing Date	April 6, 2001
First Named Inventor	Steven P. Poulsen
Art Unit	2655
Examiner Name	J. Wozniak
Attorney Docket Number	42.P10106

Total Number of Pages in This Submission **19**

ENCLOSURES *(Check all that apply)*

- [✓] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53

- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
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- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD

- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [✓] Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- [ ] Proprietary Information
- [ ] Status Letter
- [✓] Other Enclosure(s) (please identify below):
  Fax Cover Sheet

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Intel Americas
Signature	/Alan Pedersen-Giles/
Printed name	Alan Pedersen-Giles
Date	November 14, 2005	Reg. No.	39,996

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Effective on 12/08/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818). **FEE TRANSMITTAL For FY 2005**	Complete if Known	
	Application Number	09,828,400
	Filing Date	April 6, 2001
	First Named Inventor	Steven P. Poulsen
☐ Applicant claims small entity status. See 37 CFR 1.27	Examiner Name	J. Wozniak
	Art Unit	2655
TOTAL AMOUNT OF PAYMENT ($) 500.00	Attorney Docket No.	42.P10106

METHOD OF PAYMENT (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
Application Type	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	0	x 50.00 =	0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	0	x 200.00 =	0

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____	/ 50 = _____ (round up to a whole number) x	_____ =	_____

4. OTHER FEE(S)

Non-English Specification, $130 fee (no small entity discount)

	Fees Paid ($)
Other (e.g., late filing surcharge): Appeal Brief Fee	500.00

SUBMITTED BY			
Signature	/Alan Pedersen-Giles/	Registration No. (Attorney/Agent) 39,996	Telephone 703-633-1061
Name (Print/Type)	Alan Pedersen-Giles		Date November 14, 2005

PATENT
Attorney Docket No. 42.P10106

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of)	
)	
Steven P. Poulsen et al.)	Group Art Unit: 2655
)	
Application No.: 09/828,400)	Examiner: J. Wozniak
)	
Filed: April 6, 2001)	
)	
For: VOICE ACTIVITY DETECTION)	
)	

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants submit herewith an Appeal Brief as required by 37 C.F.R. § 41.37. This Appeal Brief is in response to the Final Office Action dated June 13, 2005 and the Advisory Action dated August 29, 2005.

I.   REAL PARTY IN INTEREST

The real party in interest is Intel Corporation, a corporation of Delaware.

II.   RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants which relate to, directly affect or are directly affected by the Board's decision in this appeal.

III.   STATUS OF THE CLAIMS:

Claims 1-20 are pending in this application.

Claims 1-4, 6, 8, 9, 12, 13, 15-17, and 20 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatoh et al. (U.S. Patent No. 5,611,019) in view of Jankowski (U.S. Patent No. 4,052,568). Claims 5 and 14 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatoh et al. in view of Jankowski and further in view of Kolesnik et al. (U.S. Patent No. 6,263,312). Claim 7 stands finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatoh et al. in view of Jankowski and further in view of Takada (U.S. Patent No. 5,907,624). Claims 10, 11, 18, and 19 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatoh et al. in view of Jankowski and further in view of LaMarche et al. (U.S. Patent No. 4,028,496).

The rejections of claims 1-20 are appealed. These claims are reproduced in the attached Claims Appendix.

IV.   STATUS OF AMENDMENTS:

A Response After Final was filed on August 10, 2005, but it contained no proposed amendments.

V.   SUMMARY OF THE INVENTION:

Regarding independent claims 1, 12, and 20, and with reference to the published application no. US 2002/0147585 A1, a method, system, or device may include accumulating samples of the composite signal to provide a series of frames each containing a plurality of signal samples (paragraph 0018; Fig. 2, component 30; Fig. 3, stage 60), transforming each frame to provide transform products in the frames (paragraph 0018; Fig. 2, component 30; Fig. 3, stage 64), analyzing each frame to determine a number of transform products having an amplitude above a threshold (paragraphs 0015 & 0024; Fig. 2, component 40; Fig. 6, threshold 94), and for each frame comparing the number of transform products to a validation range to determine if the frame contains the signal component (paragraphs 0015, 0025 & 0026; Fig. 2, component 40; Fig. 7, elements 130 & 134).

VI. **GROUNDS OF REJECTION:**

A. Claims 1-4, 6, 8, 9, 12, 13, 15-17, and 20 stand finally rejected under 35 U.S.C. § 103(a) over Nakatoh et al. in view of Jankowski.

B. Claims 5 and 14 stand finally rejected under 35 U.S.C. § 103(a) over Nakatoh et al. in view of Jankowski and further in view of Kolesnik et al.

C. Claim 7 stands finally rejected under 35 U.S.C. § 103(a) over Nakatoh et al. in view of Jankowski and further in view of Takada.

D. Claims 10, 11, 18, and 19 stand finally rejected under 35 U.S.C. § 103(a) over Nakatoh et al. in view of Jankowski and further in view of LaMarche et al.

VII. **ARGUMENT:**

A. Claims 1-4, 6, 8, 9, 12, 13, 15-17, and 20 are patentable under 35 U.S.C. 103(a) over Nakatoh et al. in view of Jankowski.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

1. No teaching or suggestion of all claim limitations:

Appellants respectfully traverse the § 103(a) rejection of independent claims 1, 12, and 20 over Nakatoh et al. in view of Jankowski Claims 1, 12, and 20 require a method, system, and device including, *inter alia*, "transform[ing] each frame to provide transform products in each frame; analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold; and for each frame compar[ing] the number of transform products to a validation range." Even if it were proper to combine the teachings of Nakatoh et al. and Jankowski, a *prima facie* case of obviousness has not been established, because the combination fails to teach or suggest at least the above quoted elements of independent claims 1, 12, and 20.

Page 4 of the Final Office Action reads the claimed "transforming . . ." on the "parameters obtained by FFT" in col. 11, lines 33 and 34, of Nakatoh et al.; reads the claimed

"analyzing . . ." on the comparison of power value P_i from power calculator 11a to a power

threshold value P_{TH} in col. 15, lines 3-6, of Nakatoh et al.; and reads the claimed "comparing . .

." on comparing a count number N (see Fig. 4) to a threshold N_{TH} in col. 15, lines 13-21, and Fig.

4 of Nakatoh et al.

> a.   No teaching or suggestion of "transform products in each frame":

This reading of the claims on Nakatoh et al. is internally inconsistent and fails to meet all

claim limitations. Page 4 of the Final Office Action reads the claimed transform products on

both parameters obtained by FFT (for the first "transforming" claim limitation) and the power

value P_i (for the second "analyzing" claim limitation) of Nakatoh et al. Even if Nakatoh et al.

discloses the products of an FFT transform, the power value P_i from power calculator 11a, on

which the Examiner reads the claimed "number of transform products" in the "analyzing"

limitation, bears *no relation* to the FFT transform that is alleged to teach or suggest the

"transform products in each frame" in the previous "transforming" limitation. Such plucking of

structurally or functionally unrelated elements (i.e., FFT transform products and power values

from Nakatoh et al.) out of a reference and applying them without regard to the structure and

relationship of the claimed limitations runs afoul of M.P.E.P. § 2131 ("The elements must be

arranged as required by the claim."). Thus, the claims have not been properly read on Nakatoh et

al. by the Examiner, and a *prima facie* case of obviousness has not been established.

The parameters obtained by FFT in Nakatoh et al. are unrelated to the power values P_i

cited with regard to the second and third elements quoted above. After giving a list of possible

parameters (see col. 11, lines 30 and 31 "the above-mentioned parameters may be selected from .

. ." Nakatoh et al. goes on to disclose in lines 36 and 37 that "Example 1 employs the auto-

correlation coefficients and the cepstrum coefficients." Power not listed in the list of parameters

in col. 11, lines 30-36. Also Fig. 1 (which shows Example 1 as taught in col. 11, lines 58 and

59) shows that only calculators 11b (auto-correlation) and 11c (cepstrum) are used in similarity

computer 13 for comparison with a reference model. This is notable, because it shows that 1) of

the group of parameters, FFT is not used in Fig. 1 (Example 1) (nor in Figs. 7, 11, and 14

(Examples 2-4)), and 2) power is not included of the group of parameters that includes FFT,

because the output of calculator 11a is not used by similarity computer 13 as the outputs of

calculators 11b and 11c are. Hence, the portions of Nakatoh et al. cited for the second and third

claim elements (i.e., the power values P_i) do not relate to parameters obtained by FFT, and hence

do not reasonably teach or suggest the claimed "transform products" as it has been read on Nakatoh et al. with respect to the first claim element

Nor does the calculation of a single power value P_i for a frame reasonably teach or suggest "transform[ing] each frame to provide transform products in each frame" as claimed. Col. 12, lines 32-40, of Nakatoh et al. discloses that P_i is merely a sum of squared amplitude values across the frame. This does not reasonably teach or suggest "transform[ing] each frame," as required by claims 1, 12, and 20. Also, the single power value P_i for each frame (see col. 12, line 39: " P_i denotes a power value of a frame"; and col. 12, lines 46 and 47: "The computed power value P_i is applied to the final decision unit 15") does not reasonably teach or suggest the plural "transform products in each frame," as also required by claims 1, 12, and 20.

In summary, the power value P_i from power calculator 11a does not reasonably correspond to the claimed "transform products." The calculation of a power value does not reasonably correspond to "transforming a frame" as claimed. Also, power is merely a product (i.e., amplitude squared). A mere product does not teach or suggest the claimed "transform product" unless the modifier "transform" is removed from the claim, which is improper. For at least these reasons, Nakatoh et al. fails to teach or suggest "transform products in each frame" as alleged.

> b. No teaching or suggestion of "analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold":

Col. 15, lines 3-10, of Nakatoh et al. only discloses comparing, for each frame, the frame's power value P_i with a power threshold P_{TH}. A period over which this comparison is positive is measured. Thus, Nakatoh et al. does not teach or suggest "analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold," because Nakatoh et al. does not disclose determining "a number of transform products in each frame." Rather, all that Nakatoh et al. teaches or suggests is a binary comparison of a single, per-frame power value with a threshold, and not "determin[ing] a number" of products "in each frame." Thus, the binary decision in Nakatoh et al. does not teach or suggest "analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold" set forth in claims 1, 12, and 20.

The teachings of Jankowski fail to cure any of these deficiencies in the primary reference, Nakatoh et al. First, Jankowski fails to teach or suggest the claimed "transform products," because it concerns only the amplitude of an input signal (see Fig. 1, "Amplitude" label of y-axis). No transforming of the input signal is taught or suggested by Jankowski (see generally, Fig. 2, inputs to detectors 7 and 15).

Further, even if Jankowski discloses using "individual speech samples" as alleged in the Final Office Action, it fails to teach or suggest doing anything "in each frame" as required by the above-quoted three elements of claims 1, 12, and 20. For example, the word "frame" does not appear in Jankowski. Also, Jankowski only discloses at col. 3, line 65, to col. 4, line 1, detection of speech based on three or four consecutive samples. Jankowski gives no description or requirement that the samples need fall within a frame or other specified period, and does not teach or suggest "analyzing each frame" and "in each frame comparing" as required by claims 1, 12, and 20. In other words, Jankowski does not supply the "in each frame" teaching/suggestion that the Final Office Action admits is lacking in Nakatoh et al.

The Examiner responds on page 3 of the Final Office Action that "it is the combination of Nakatoh and Jankowski that teaches this [performing analysis in each frame] limitation." The Examiner further alleges that Jankowski teaches analyzing a speech segment, while Nakatoh teaches a frame as a particular speech segment.

The quoted claim limitations above require, among other things, "analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold." As explained above, Nakatoh et al. fails to teach or suggest determining a number of anything within a frame, and Jankowski lacks any teaching or suggestion of transform products or frames.

Each reference fails to teach or suggest determining a number of transform products. As explained above, the power value P_i of Nakatoh et al. does not reasonably correspond to the claimed transform product. Nor do the amplitudes of Jankowski teach or suggest the claimed "transform products." Because neither reference teaches or suggests "determin[ing] a number of transform products" as claimed, the combination of Nakatoh et al. and Jankowski plainly cannot teach or suggest it. For at least these reasons, the combination of Nakatoh et al. and Jankowski fails to teach or suggest "analyz[ing] each frame to determine a number of transform products in each frame having an amplitude above a threshold" as alleged.

    c.   <u>No teaching or suggestion of "for each frame compar[ing] the</u>
<u>number of transform products to a validation range":</u>

Regarding the final, "comparing" element of claims 1, 12, and 20, it has been explained above that <u>Nakatoh et al.</u> fails to teach or suggest both "transform products in each frame" and "the number of transform products in each frame." Page 3 of the Final Office Action also appears to admit that <u>Nakatoh et al.</u> also fails to teach or suggest "for each frame comparing . . . to determine if the frame contains the signal component." All that <u>Nakatoh et al.</u> seems to actually disclose is comparing a number that is not a number of transform products (i.e., a number of frames N for which P_i exceeds P_{TH} (Fig. 4, steps 320 and 330)) with a threshold (i.e., N_{TH}, Fig. 4, step 350). Hence, Appellants respectfully disagree with the sweeping assertion on page 3, line 15, that "Nakatoh discloses a method similar to the present invention." With regard to at least the final, "comparing" element of claims 1, 12, and 20, this would only be true if one removed most of the words therein.

Neither <u>Nakatoh et al.</u> nor <u>Jankowski</u> (nor their combination) teaches or suggests "for each frame comparing . . ." anything. <u>Nakatoh et al.</u> only discloses comparing a number of frames N for which P_i exceeds P_{TH} with a threshold. This is not "for each frame" as claimed. As explained above, <u>Jankowski</u> fails to teach or suggest frames at all, so it also cannot teach or suggests a comparison "for each frame" as claimed.

Because the combination of <u>Nakatoh et al.</u> and <u>Jankowski</u> fails to teach or suggest all claimed elements, a *prima facie* case of obviousness has not been established for claims 1, 12, and 20. The § 103(a) rejection of claims 1, 12, and 20 is improper and should be reversed.

Dependent claims 2-4, 6, 8, 9, 13, and 15-17 are allowable at least by virtue of their respective dependence from claims 1 and 12.

    2.   <u>No suggestion or motivation to combine reference teachings:</u>

Appellants respectfully traverse the § 103(a) rejection of claims 1-4, 6, 8, 9, 12, 13, 15-17, and 20 over <u>Nakatoh et al.</u> in view of <u>Jankowski</u>. A *prima facie* case of obviousness has not been established, at least because one of ordinary skill in the art would not have been motivated to combine <u>Nakatoh et al.</u> and <u>Jankowski</u> as proposed. In particular, no evidence or convincing reasoning has been provided detailing why one of ordinary skill would have altered the frame counting scheme in <u>Nakatoh et al.</u> as proposed. For example, no need or other deficiency in such

a per-frame scheme has been suggested or proven that would have motivated one of ordinary
skill in the art to add any teaching from <u>Jankowski</u>.

     a. <u>No suggestion or motivation in the Final Office Action:</u>

The proposed justification on page 4 of the Final Office Action:

"... to implement a more adaptive voice activity detection method by counting samples

to detect the presence of noise for an audio segment (frame) to account for rapid changes

in signal level from since the initial threshold comparison is performed over a shorter

segment"

contains neither citation to either reference nor technical reasoning why one of ordinary skill in
the art would have been motivated to add the simple amplitude-based scheme of <u>Jankowski</u> to
the more sophisticated scheme of <u>Nakatoh et al.</u> Page 4 of the Office Action provides *no
evidence* of a suggestion or motivation to combine from either reference or the knowledge
available to those in the art. But see M.P.E.P. § 2142: "The examiner bears the initial burden of
factually supporting any prima facie conclusion of obviousness." Because no factual support has
been provided, a *prima facie* case of obviousness has not been established.

     b. <u>No suggestion or motivation in the Advisory Action:</u>

In the Advisory Action, the Examiner points to col. 3, lines 45-47, and col. 4, lines 60-62,
of <u>Jankowski</u> as allegedly suggesting "accounting for rapidly varying signal level by counting
samples in an audio segment."

Col. 3, lines 45-47 of <u>Jankowski</u> merely refers to operating at "high speed" and
performing "rapid adjustment." There has been no evidence provided that the per-frame or per-
several frame adjustment scheme in <u>Nakatoh et al.</u> is not performed at "high speed" or is not a
"rapid adjustment." In other words, that <u>Jankowski</u> discloses "high speed" and performing
"rapid adjustment" would not motivate one of ordinary skill to add its teachings, because such do
not plainly cure a need or deficiency in <u>Nakatoh et al.</u>

Col. 4, lines 60-62, of <u>Jankowski</u> merely states that the positions of T_H and T_L are
constantly adjusted according to the noise level. This portion of <u>Jankowski</u>, like the preceding
portion, also fails to cure any deficiency in <u>Nakatoh et al.</u> or otherwise provide any suggestion or
motivation for the proposed combination of the two references.

Merely citing to two portions of the secondary reference, as the Examiner has done, does
not show why one of ordinary skill, faced with the teachings of the two references, would have

combined them as proposed. No need or other deficiency has been proposed or proven for Nakatoh et al. that would have motivated one of ordinary skill to add Jankowski. While it is certainly possible that one of ordinary skill might under certain circumstances look to one reference (e.g., Jankowski) that is 20 years older than another reference (e.g., Nakatoh et al.) to cure some deficiency in the much newer reference, no convincing technical reasoning or other evidence has been provided for doing so here.

Because no evidence or convincing technical reasoning has been provided that one of ordinary skill in the art would have been motivated to combine Nakatoh et al. and Jankowski as postulated, a *prima facie* case of obviousness has not been established with regard to claims 1-4, 6, 8, 9, 12, 13, 15-17, and 20. The § 103(a) rejection of these claims should be reversed.

B. Claims 5 and 14 are patentable under 35 U.S.C. 103(a) over Nakatoh et al. in view of Jankowski, and further in view of Kolesnik et al.

In addition to the reasons given above in sections VII(A)(1) and VII(A)(2) (i.e., failure to teach or suggest all limitations and no suggestion or motivation to combine Nakatoh et al. and Jankowski), dependent claims 5 and 14 are allowable for the following reasons.

1. No suggestion or motivation to combine reference teachings:

Page 7 of the Final Office Action proposes that it would have been obvious to add an overlapping frame teaching from Kolesnik et al. because "the method of widowing and overlapping frames are noted by Kolesnicket [sic, et al.] to be the same function." First, this is inaccurate. The teaching on col. 5, lines 4 and 5, of Kolesnik et al. of "partitioned into overlapping frames (sometimes referred to as windows or segments)" does not say this at all. Rather, the parenthetical expression refers to the last word "frames," which are sometimes referred to as windows or segments.

Even if, as the Examiner proposes, windowing and overlapping frames were the same thing, this provides zero motivation for one of ordinary skill in the art to add overlapping frames to the teachings of Nakatoh et al. No deficiency, or need, in Nakatoh et al. has been demonstrated which would have suggested or motivated one of ordinary skill to overlap the frames in Nakatoh et al.

Because no evidence or convincing technical reasoning has been provided that one of ordinary skill in the art would have been motivated to add Kolesnik et al. to the combination of

Nakatoh et al. and Jankowski as postulated, a *prima facie* case of obviousness has not been established with regard to claims 5 and 14. The § 103(a) rejection of these claims should be reversed for this additional reason.

C.   Claim 7 is patentable under 35 U.S.C. 103(a) over Nakatoh et al. in view of Jankowski, and further in view of Takada.

In addition to the reasons given above in sections VII(A)(1) and VII(A)(2) (i.e., failure to teach or suggest all limitations and no suggestion or motivation to combine Nakatoh et al. and Jankowski), dependent claim 7 is allowable for the following reasons.

1.   No teaching or suggestion of all claim limitations:

Claim 7 requires a method including, *inter alia*, "determining if the number of transform products exceeds the computed spectral average of the transform products within the validation range." By contrast, the col. 5, lines 57-64, of Takada discloses comparing a mean power ratio VP(k) with threshold, and not with "the number of transform products" as claimed. Further, VP(k) is a *ratio* of averages (see col. 5, lines 52-54), and not a "computed spectral average" as claimed. Moreover, there is no indication in col. 5, lines 57-64, of Takada that the mean power ratio VP(k) is computed "within the validation range" as set forth in claim 7.

Because the combination of Nakatoh et al., Jankowski, and Takada fails to teach or suggest all claimed elements, a *prima facie* case of obviousness has not been established for claim 7. The § 103(a) rejection of claim 7 is improper and should be reversed for this additional reason.

D.   Claims 10, 11, 18, and 19 are patentable under 35 U.S.C. 103(a) over Nakatoh et al. in view of Jankowski, and further in view of LaMarche et al.

Claims 10, 11, 18, and 19 are patentable for the reasons given above with regard to claims 1 and 12 in sections VII(A)(1) and VII(A)(2) (i.e., failure to teach or suggest all limitations and no suggestion or motivation to combine Nakatoh et al. and Jankowski).

CONCLUSION

For the reasons set forth above, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejection of claims 1-20.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess fees to such deposit account.

Respectfully submitted,

Dated: <u>November 14, 2005</u>   <u>/Alan Pedersen-Giles/</u>
Alan Pedersen-Giles
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VIII. CLAIMS APPENDIX

1.　(previously presented)　A method of detecting a signal component in a composite signal comprising;

　　a)　accumulating samples of the composite signal to provide a series of frames each containing a plurality of signal samples;

　　b)　transforming each frame to provide transform products in the frames;

　　c)　analyzing each frame to determine a number of transform products having an amplitude above a threshold; and

　　d)　for each frame comparing the number of transform products to a validation range to determine if the frame contains the signal component.

2.　(original)　The method according to claim 1, further including determining if the signal component is present in the composite signal based on the contents of a series of the individual frames.

3.　(original)　The method according to claim 1, further including detecting the presence of a predetermined characteristic in the composite signal before the operation of determining the presence of the signal component can be performed.

4.　(original)　The method according to claim 1, wherein transforming each frame is performed by a Fast Fourier Transform.

5.　(original)　The method according to claim 1, including overlapping the frames in conjunction with transforming each frame.

6.　(original)　The method according to claim 1, wherein transforming each frame is performed by a windowed transforming.

7.　(original)　The method according to claim 1, wherein comparing the number of transform products includes determining if the number of transform products exceeds the

computed spectral average of the transform products within the validation range.

8.   (original) The method according to claim 1, wherein determining if the signal component is present comprises counting the number of frames containing the signal component until a predetermined number of frames is obtained indicating that the signal component is present in the composite signal.

9.   (original) The method according to claim 1, wherein the signal component is voice in a composite signal containing voice and non-voice components.

10.   (original) The method according to claim 1, wherein the signal component is voice in a composite signal containing voice and network tone components.

11.   (original) The method according to claim 3, wherein the signal component is voice and the predetermined characteristic is utilized to determine the presence of echo in the composite signal.

12.   (previously presented) A system for detecting a signal component in a composite signal comprising:

a)   a processing component to accumulate a number of samples of the composite signal to provide a series of frames each containing a plurality of signal samples and to transform each frame to provide transform products in the frame; and

b)   a frame validation component to analyze each frame to determine a number of transform products each having an amplitude above a threshold and to compare the number of transform products to a validation range to determine if the frame contains the signal component.

13.   (original) The system according to claim 12, further including a component to determine if the signal component is present in the composite signal based on the contents of the individual frames.

14.   (original) The system according to claim 12, wherein the processing component

includes a component to overlap the frames in conjunction with the transform of each frame.

15. (original) The system according to claim 12, wherein the processing component includes a component to window the transform of each frame.

16. (original) The system according to claim 12, further including a component to detect the presence of a predetermined characteristic in the composite signal before operation of the frame validation component can be completed.

17. (original) The system according to claim 12, wherein the signal component is voice in a composite signal containing voice and non-voice components.

18. (original) The system according to claim 12, wherein the signal component in voice is a composite signal containing voice and network tone components.

19. (original) The system according to claim 16, wherein the signal component is voice and the predetermined characteristic is utilized to determine the presence of echo in the composite signal.

20. (previously presented) A program storage device readable by a machine embodying a program of instructions executable by the machine to detect a signal component in a composite signal, the instructions comprising:

    a) accumulating a number of samples of the composite signal to provide a series of frames each containing a plurality of signal samples;

    b) transforming each frame to provide transform products in the frames;

    c) analyzing each frame to determine a number of transform products having an amplitude above a threshold; and

    d) for each frame comparing the number of transform products to a validation range to determine if the frame contains the signal component.

IX.   <u>EVIDENCE APPENDIX</u>

None.

X. RELATED PROCEEDINGS APPENDIX

None.